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The claims defining the invention are as follows:-

1. A telemetry system including:-  
  
one or more supervision terminals;  
  
one or more remote terminals associated with at least one of the supervision  
5 terminals;  
  
a data network linking the supervision terminal and the remote terminal via an  
"always-on" connexion through the data network providing accessibility between the  
or each remote terminal and the supervision terminal;  
  
wherein;  
  
10 the or each supervision terminal is in communication with each corresponding  
associated remote terminal across the data network using network facilities of the  
data network for carriage and switching or routing of messages;  
  
wherein messages from the remote terminal to the supervision terminal are  
transmitted across the network, the message content being passed transparently  
15 across the network between the remote terminal to the supervision terminal;  
  
wherein:  
  
the supervision terminal transmits poll requests to the or each remote terminal  
according to a fixed or programmable routine;  
  
the or each remote terminal, on receiving a poll request, transmits a poll response to  
20 the supervision terminal: and  
  
the supervision terminal monitors poll responses from the or each remote terminal to  
monitor accessibility between the remote terminal or terminals and the associated  
supervision terminal via the "always on" connexion.
2. A telemetry system as claimed in claim 1, wherein the poll request is sent at a  
25 selected repetition rate.
3. A telemetry system as claimed in claim 1 or claim 2, wherein the supervision  
terminal awaits a poll response during a selected response window.

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4. A telemetry system as claimed in claim 3, wherein the response window is shorter than the repetition rate.
5. A telemetry system as claimed in claim 4, wherein, if a response is not received within a window, the supervision terminal initiates a poll request after that  
5 window.
6. A telemetry system as claimed in claim 5, wherein, after a predetermined number of unanswered poll requests, the supervision terminal flags the remote terminal as inaccessible.
7. A telemetry system as claimed in any one of claims 1 to 6, including one or  
10 more monitoring devices connected to one or more remote terminals.
8. A telemetry system as claimed in claim 7, wherein the remote terminal monitors the or each monitoring device and reports the condition and status of the or each monitoring device to the supervision terminal.
9. A telemetry system as claimed in claim 7 or claim 8, wherein the remote  
15 terminal emulates the communication interface and protocol required by the monitoring device.
10. A telemetry system as claimed in any one of claims 7 to 9, wherein the remote terminal converts communications from the monitoring device to the format and protocol of the data network.
- 20 11. A telemetry system as claimed in any one of claims 7 to 10, wherein the remote terminal includes a bypass switch and bypass control, the bypass control being responsive to a bypass command signal to connect the monitoring device to the network via the bypass switch.
12. A system as claimed in any one of claims 1 to 11, wherein  
25 the data network uses the TCP/IP protocol suite.
13. A system as claimed in any one of the preceding claims, wherein the data network is a broadband network.

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14. A system as claimed in any one of the preceding claims, wherein the remote terminal is linked to the network via an ADSL link.
15. A system as claimed in any one of the preceding claims, wherein the remote terminal is linked to the network via a wireless link.
- 5 16. A system as claimed in claim 15, wherein the wireless link is either a cellular network link, a GPRS link, or a 1xRTT link.
17. A system as claimed in any one of claims 1 to 16, wherein the supervision terminal transmits information queries for selectable information to the or each remote terminal, and wherein the remote terminal replies to the information query
- 10 with the requested selectable information.
18. A system as claimed in claim 17, wherein the supervision terminal includes verification means to verify the related response message from the remote terminal.
19. A system as claimed in any one of the preceding claims, wherein
- 15 the remote terminal is adapted to transmit alarm messages independently of the reception of a polling request from a supervision terminal.
20. A system as claimed in any one of claims 1 to 19, wherein the remote terminal is adapted to transmit heartbeats to the or each associated supervision terminal.
- 20 21. A system as claimed in claim 20, wherein the remote terminal is adapted to transmit heartbeats to the or each associated supervision terminal as a response to a poll request from an associated supervision terminal.
22. A system as claimed in any one of the preceding claims, wherein
- 25 the remote terminal includes:

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a bypass switch; and

remote terminal monitor means monitoring the remote terminal,

the remote terminal monitor means being adapted to operate the bypass switch to  
disconnect the remote terminal and to connect the alarm terminal to a telephone

5 network in the event of a failure of the remote terminal.

23. A system as claimed in any one of the preceding claims, wherein

the or each supervision terminal incorporates or is connected to an associated  
monitor system,

the monitor system being adapted to make information received from the supervision  
10 terminal available to an operator.

24. A system as claimed in claim 23, wherein

the supervision terminal includes monitor interface emulation means converting  
information from the supervision terminal to the monitor information format.

25. A system as claimed in claim 23 or 24, wherein

15 the or each supervision terminal includes supervision terminal self-diagnostic means  
and sends supervision terminal status reports to the associated monitoring system.

26. A system as claimed in any one of claim 23 to 25, wherein

the or each remote terminal includes remote terminal self-diagnostic means and  
sends remote terminal status reports to the associated monitoring system.

20 27. A system as claimed in any one of the preceding claims, including

an association register recording the association between remote terminals and  
supervision terminals, the association register being accessible to the or each  
supervision terminal.

28. A system as claimed in claim 27 wherein the or each supervision terminal and  
25 the or each remote terminal have access to the association register via the data  
network.

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29. A system as claimed in any one of the preceding claims, wherein  
for at least one supervision terminal, there is an additional supervision terminal to  
provide redundancy.
30. A system as claimed in any one of claims 27 to 29, wherein  
5 the association register is located in a registration server, and  
the address of the registration server is installed in the or each remote terminal to  
enable the remote terminal to communicate with the registration server.
31. A system as claimed in any one of claims 1 to 30 including one or more image  
capture device linked to the remote terminal, the or each image capture device being  
10 associated with an associated detector to capture images of a designated area on  
receipt of an image capture command from the associated detector.
32. A system as claimed in claim 31, wherein the or each image capture device is  
associated with a corresponding associated circular buffer capable of recording a  
predetermined amount of image information into which the image capture device  
15 continually stores image information, the remote terminal causing the storing of  
image information to cease after a predetermined amount of post-image capture  
command information is stored in the buffer leaving a predetermined amount of pre-  
image capture command information remaining in the buffer.
33. A system as claimed in claim 31 or 32, wherein on receipt of an image  
20 capture command, the image capture device captures a pre-determined amount of  
information at a higher resolution.
34. A method of transmitting information in a telemetry system including:-  
one or more supervision terminals;  
one or more remote terminals associated with at least one of the supervision  
25 terminals;  
a data network linking the supervision terminal and the remote terminal via an  
"always-on" connexion through the data network providing accessibility between the  
or each remote terminal and the supervision terminal;

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the method including the step of:

monitoring the or each remote terminal from at least one of the associated supervision terminals via the data network;

transmitting messages from the remote terminal to the supervision terminal across  
5 the network using network facilities of the data network for carriage and switching or routing of messages, the message content being passed transparently across the network between the remote terminal to the supervision terminal;

and

transmitting poll requests from the supervision terminal to the or each remote  
10 terminal according to a fixed or programmable routine;

wherein the or each remote terminal transmits a poll response to its associated supervision terminal on receipt of a poll request; and

wherein the supervision terminal monitors the poll responses from the or each remote terminal to monitor accessibility between the remote terminal or terminals  
15 and the associated supervision terminal via the "always on" connexion.

35. A method as claimed in claim 34, wherein

the or each remote terminal communicates with its associated supervision terminal or terminals using a predetermined communication protocol.

36. A method as claimed in claim 35, wherein

20 the data network uses the TCP/IP protocol suite.

37. A method as claimed in any one of claims 34 to 36, wherein

the data network is a broadband network.

38. A method as claimed in any one of the claims 34 to 37, wherein

the network is an ADSL network.

25 39. A method as claimed in any one of claims 34 to 38, wherein

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the supervision terminal transmits poll requests to the or each remote terminal, and the or each remote terminal transmits a poll response to the supervision terminal on reception of a poll request, and wherein

the supervision terminal transmits poll requests at a poll request repetition rate, and  
5 wherein,

when no poll response is received from the remote terminal within a first window period in response to a poll request, the supervision terminal transmits a repeat poll requests after the first window period, the first window period being less than the poll request repetition period.

10 40. A method as claimed in claim 39, wherein, in the event of a predetermined number of sequential failures of a poll response from a remote terminal, the supervision terminal transmits a failure notification to the monitor system.

41. A method as claimed in any one of claims 38 to 40, including  
at the supervision terminal, transmitting information queries for selectable  
15 information to the or each remote terminal, and wherein the remote terminal replies to the information query with the requested selectable information.

42. A method as claimed in any one of claims 34 to 41, including,  
at the supervision terminal, verifying accessibility between the remote terminal or terminals and the associated supervision terminal via the "always on" connexion  
20 from the related response information in the poll response.

43. A method as claimed in any one of claims 34 to 42, including,  
at the remote terminal, transmitting alarm messages independently of the reception of a polling request from a supervision terminal.

44. A method as claimed in any one of claims 34 to 43, including,  
25 at the remote terminal, autonomously transmitting heartbeats to the or each associated supervision terminal.

45. A method as claimed in any one of claims 34 to 43, including,

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at the remote terminal, transmitting heartbeats to the or each associated supervision terminal as a response to a poll request from an associated supervision terminal.

46. A method as claimed in any one of claims 34 to 45, wherein the remote terminal transmits association information to an association register on start-up of  
5 the remote terminal.

47. A method as claimed in claim 46, wherein the remote terminal retrieves information from the associated monitoring device for transmission to the association register.

48. A method as claimed in any one of claims 34 to 46, wherein the remote  
10 terminal includes

bypass switch means and

remote terminal monitor means monitoring the remote terminal, wherein

the remote terminal monitor means operates the bypass switch means to disconnect the data link and connects a monitoring device to the telephone line in the event of a  
15 failure of the remote terminal.

49. A method as claimed in any one of claims 34 to 48, wherein

the remote terminal includes a monitoring device interface,

the method including:

at the telemetry interface, emulating a network interface for the corresponding  
20 monitoring device,

converting information received from the monitoring device to the network communication protocol, and

transmitting the converted information to the supervision terminal.

50. A method as claimed in any one of claims 34 to 49, wherein  
25 the or each supervision terminal is connected to an associated monitor system,  
the method including:



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presenting information received from the supervision terminal to an operator at the monitor system.

51. A method as claimed in claim 50, wherein

the supervision terminal includes monitor interface emulation means,

5 the method including:

at the supervision terminal, converting information for transmission to the monitor system from the supervision terminal to the monitor information format.

52. A method as claimed in any one of claims 34 to 51, wherein

supervision terminal includes supervising terminal monitor means,

10 the method including,

at the supervision terminal, monitoring the status of the supervision terminal, and transmitting supervision terminal status reports to the monitor system.

53. A method as claimed in any one of claims 34 to 52, wherein

remote terminal includes remote terminal monitor means,

15 the method including,

at the remote terminal, monitoring the status of the remote terminal, and transmitting remote terminal status reports to the monitor system.

54. A method as claimed in any one of claims 34 to 53, including

compiling a registration table associating the or each remote terminal with the or

20 each associated supervision terminal.

55. A method as claimed in claim 54, including installing the address of the registration table in the or each remote terminal,

the remote terminal being programmed to communicate with the registration table on start up of the remote terminal.

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56. A supervision terminal for use in a system as claimed in any one of claims 1 to 33, including:

a supervision terminal network interface means adapted to respond to an alert condition originating from a remote terminal,

5 monitor system interface adapted to transmit an alert message to an associated monitor system and to receive a first acknowledgment message therefrom,

the supervision terminal network interface being adapted to transmit a second acknowledgment signal to the remote terminal from which the alert condition originated,

10 the supervision terminal including a poll request generator to transmit poll requests to the or each remote terminal,

the supervision terminal including a poll response processor to monitor the poll responses received from the or each remote terminal to monitor accessibility between the remote terminal or terminals and the associated supervision terminal via

15 the "always on" connexion,

the supervision terminal including a message receiver to receive messages from the or each remote terminal which have been transmitted across the network without processing of the message content at an intermediate point in the network.

57. A supervision terminal for use in a system as claimed in any one of claims 1 to 20 to 33, the supervision terminal including:

accessibility monitoring means adapted to monitor accessibility between the remote terminal or terminals and the associated supervision terminal via the "always on" connexion by transmitting poll requests to the or each remote terminal and monitoring the poll response from the or each remote terminal,

25 wherein the supervision terminal is adapted to receive messages from the remote terminal, the message content of which has been transmitted transparently across the network through the intermediate nodes in the network.

58. A supervision terminal as claimed in claim 57 including:

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a supervision terminal network interface;

alert condition storage means;

alert condition processing means;

a monitor system interface including:

- 5 message means transmitting an alert condition originating from a remote terminal to the monitor system;

means for receiving and storing of a first acknowledgment message sent by the supervision system.

59. A supervision terminal as claimed in claim 57 or claim 58, wherein

- 10 the supervision terminal includes poll request transmission means to transmit poll requests to one or more associated remote terminals, the or each associated remote terminal being adapted to transmit a poll response to the supervision terminal on reception of a poll request, and wherein

the supervision terminal including verification means to verify the related response

- 15 message from the remote terminal.

60. A supervision terminal as claimed in any one of claims 56 to 59, wherein

the supervision terminal transmits poll requests at a poll request repetition rate, and wherein,

when no poll response is received from the remote terminal within a first window

- 20 period in response to a poll request, the supervision terminal transmits repeat poll requests after the first window period, the first window period being less than the poll request repetition period.

61. A supervision terminal as claimed in any one of claims 59 or 60, wherein the request poll includes selectable data.

- 25 62. A supervision terminal as claimed in any one of claims 59 to 61, wherein

the or each supervision terminal is connected to an associated monitor system via

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said monitor interface.

63. A supervision terminal as claimed in claim 62, wherein

the monitor interface converts information from the supervision terminal to the monitor information format.

5 64. A supervision terminal as claimed in any one of claims 56 to 63 , including supervision terminal self-diagnostic means adapted to send supervision terminal status reports to the associated monitoring system.

65. A remote terminal for use in a system as claimed in any one of claims 1 to 33, including:

10 a remote terminal network interface means adapted to receive and respond to poll requests from one or more associated supervision terminals;

a monitoring device interface adapted to:

receive monitoring messages originating from the associated monitoring device,

transmit alert conditions to one or more associated supervision terminals, and

15 to transmit third acknowledgment messages to the monitoring device;

wherein the remote terminal is adapted to receive messages from the supervision terminal, the message content of the messages being transmitted transparently across the network through the intermediate nodes in the network.

66 A remote terminal as claimed in claim 65, wherein the third acknowledgment  
20 message is transmitted in response to the reception of a second acknowledgment message from an associated supervision terminal.

67 A remote terminal as claimed in claim 65 including tamper detection means whereby the Customer Terminal is able to continuously monitor the telemetry terminal to detect tampering or substitution attempts;

25 68 A remote terminal as claimed claim 65, including

response selection means to select a related response message from selectable

information in a poll request from an associated supervision terminal.

69. A remote terminal as claimed in claim 65 to 68, wherein

the remote terminal is adapted to transmit alarm messages independently of the reception of a polling request from a supervision terminal.

5 70. A remote terminal as claimed in any one of claims 65 to 69, wherein

the remote terminal is adapted to transmit heartbeats to the or each associated supervision terminal.

71. A remote terminal as claimed in any one of claims 65 to 69, wherein

10 the remote terminal is adapted to transmit heartbeats to the or each associated supervision terminal as a response to a poll request from an associated supervision terminal.

72. A remote terminal as claimed in any one of claims 65 to 71, including:

a bypass switch; and

remote terminal monitor means monitoring the remote terminal,

15 the remote terminal monitor means being adapted to operate the bypass switch to disconnect the remote terminal and to connect an associated monitoring device to a telephone network in the event of a failure of the remote terminal.

73. A remote terminal as claimed in any one claims 65 to 72, including

20 a monitoring device interface adapted to emulate a network interface for the corresponding monitoring device and to convert information received from the telemetry equipment to the network communication protocol.

74. A remote terminal as claimed in any one of claims 65 to 73, including remote terminal self-diagnostic means whereby, the remote terminal sends remote terminal status reports to an associated monitoring system.

25 75. A remote terminal as claimed in any one of claims 65 to 74, wherein

the address of one or more association registers is recorded in the remote terminal

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to enable the remote terminal to communicate with the registration server.

76. A remote terminal as claimed in any one of claims 65 to 75, wherein the remote terminal is associated with at least one additional supervision terminal to provide redundancy.

5 77. A remote terminal as claimed in any one of claims 65 to 76 including one or more image capture device linked to the remote terminal, the or each image capture device being associated with an associated detector to capture images of a designated area on receipt of an image capture command from the associated detector.

10 78. A remote terminal as claimed in claim 77, wherein the or each image capture device is associated with a corresponding associated circular buffer capable of recording a predetermined amount of image information into which the image capture device continually stores image information, the remote terminal causing the  
15 capture command information is stored in the buffer leaving a predetermined amount of pre-image capture command information remaining in the buffer.

79. A remote terminal as claimed in claim 77 or 78, wherein on receipt of an image capture command, the image capture device captures a pre-determined amount of information at a higher resolution.

20 80. A telemetry system substantially as herein described with reference to the accompanying drawings.

81. A method of transmitting information in a telemetry system substantially as herein described with reference to the accompanying drawings.

82. A supervision terminal substantially as herein described with reference to the  
25 accompanying drawings.

83. A remote terminal substantially as herein described with reference to the accompanying drawings.

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Dated this 29<sup>TH</sup> day of JANUARY 2004



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